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J.D.  
5-21-03

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: JAMES K. WALLER, JR.  
JON J. WALLER  
RUSSELL W. BLUM

SERIAL NO.: 09/362,266

FILED: 07/28/1999

FOR: MULTI-DIMENSIONAL PROCESSOR AND  
MULTI-DIMENSIONAL AUDIO PROCESSOR  
SYSTEM

GROUP: 2644

EXAMINER: XU MEI

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APPELLANTS' BRIEF (37 CFR 1.192)

This brief is in furtherance of the Notice of Appeal filed in this case on 03/12/03.

The fees required under §1.17(f) and any required petition for extension of time for  
filing this brief and fees therefor are dealt with in the accompanying Transmittal of Appeal  
Brief.

This brief is transmitted in triplicate.

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This brief contains these items under the following headings and in the order set forth below (37 CFR 1.192(c)):

- I. REAL PARTY INTEREST
- II. RELATED APPEALS AND INTERFERENCES
- III. STATUS OF CLAIMS
- IV. STATUS OF AMENDMENTS
- V. SUMMARY OF INVENTION
- VI. ISSUES
- VII. GROUPING OF CLAIMS
- VIII. ARGUMENT
- IX. APPENDIX OF CLAIMS INVOLVED IN THE APPEAL

#### **I. REAL PARTY INTEREST**

The real parties in interest in this appeal are the parties named in the caption of this Brief.

#### **II. RELATED APPEALS AND INTERFERENCES**

With respect to other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal, there are no such appeals or interferences.

#### **III. STATUS OF CLAIMS (37 CFR 1.192(c)(1))**

##### **A. TOTAL NUMBER OF CLAIMS IN APPLICATION**

The claims in the application are claims 2-5.

**B. STATUS OF ALL THE CLAIMS**

1. Claims pending: 2-5.
2. Claims rejected: 2-5.

**C. CLAIMS ON APPEAL**

Claims 2-5 are on appeal.

**IV. STATUS OF AMENDMENTS**

There are no outstanding amendments to the claims.

**V. SUMMARY OF INVENTION (37 CFR 1.192(c)(3))**

Variable multiple channel audio output signals are controllable by a user in response to the user's audio recognition of the channel output signals during the user's performance.

In one embodiment (claims 2 and 3), an input signal is modified to produce a second signal and either the input signal or the second signal are variably controlled. The variably controlled signal is then mixed with the other signal to produce variably controllable third, fourth and fifth channel output signals.

In another embodiment (claims 4 and 5), the input signal is modified to produce a second signal and both the input signal and the second signal are variably controlled. The variably controlled signals are then mixed to produce variably controllable third, fourth and fifth channel output signals.

If, as in the first embodiment, only the input signal is variably controllable or only the second signal is variably controllable (claims 2 and 3), regardless of which one is variable, then one of the signals being mixed is variably controllable. On the other hand, as in the second embodiment, if both the input and second signals are variable (claims 4 and 5), both the signals being mixed are variably controllable. In either embodiment, the result is

always variable third, fourth and fifth channel output signals.

#### **VI. ISSUES (37 CFR 1.192(c)(4))**

Whether claims 2 and 3 are anticipated under 35 USC 102(b) by DeFreitas, Berkovitz or Morishima.

Whether claims 4 and 5 are anticipated under 35 USC 102(b) by Dolby or Hilbert.

#### **VII. GROUPING OF CLAIMS (37 CFR 1.192(c)(5))**

The rejected claims do not stand or fall together. They may be grouped as follows:

Group A - Claims 2 and 3.

Group B - Claims 4 and 5.

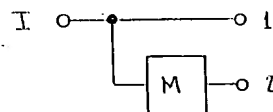
#### **VIIID. ARGUMENT - REJECTION UNDER 35 USC 102**

**(37 CFR 1.192(c)(8)(iii))**

##### **A. APPLICANTS' CLAIMED INVENTION**

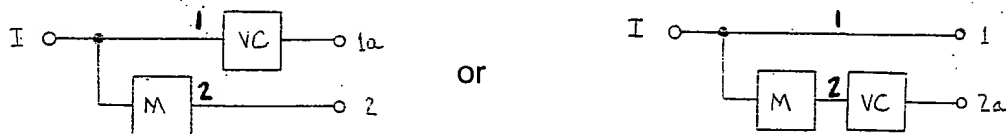
In order to see the patentable distinctions of applicants' invention over the cited references, it is useful to reduce applicants' claims to a visual picture that can be compared to the teachings of the references.

In the embodiment of applicant's claims 2 (method) and 3 (apparatus) the input signal I is received resulting in a first signal 1 and modified at M to produce a second signal 2 (Cl.2, Ln.3-4; Cl.3, Ln.2-3). This diagrams as:

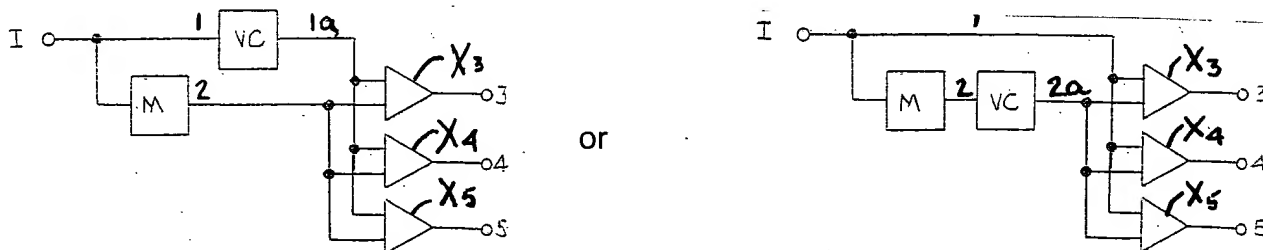


One, but not both, of these signals is variably controlled (Cl.2, Ln.5; Cl.3, Ln.4).

Thus the above diagram can be further developed as either:

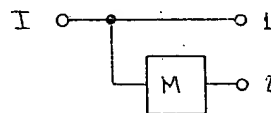


The resulting signals 1a and 2 or 1 and 2a are mixed (at X) to produce variably controlled third, fourth and fifth signals (Cl.2, Ln.6-7); Cl.3, Ln.5-6). Thus, the invention of claims 2 and 3 can be fully pictorially represented as either:

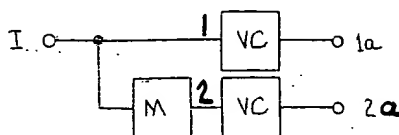


In either case, the outputs 3, 4 and 5 are the result of mixing a variably controlled input signal 1 with a modification 2 of the same input 1 or of mixing the input signal 1 itself with a variably controlled modification 2 of the same input 1.

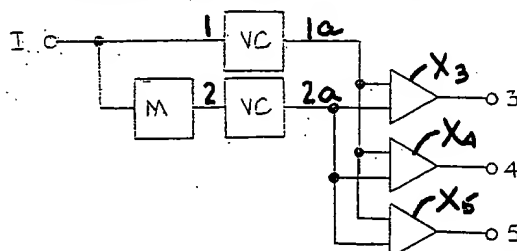
In this embodiment of applicant's claims 4 (method) and 5 (apparatus), the input signal I is received resulting in a first signal 1 and modified at M to produce a second signal 2 (Cl.4, Ln.3-4; Cl.5, Ln.2-3). This diagrams as:



Both of these signals 1 and 2 are variably controlled (Cl.4, Ln.5; Cl.5, Ln.4). This extends the above diagram as:



Both variably controlled signals 1a and 2a are then mixed to produce variably controlled third, fourth and fifth signals (Cl.4, Ln.6-7; Cl.5, Ln.5-6). This diagrams as:



Again, the outputs 3, 4 and 5 are the result of mixing a variably controlled input signal with a variably controlled modification of the same input signal.

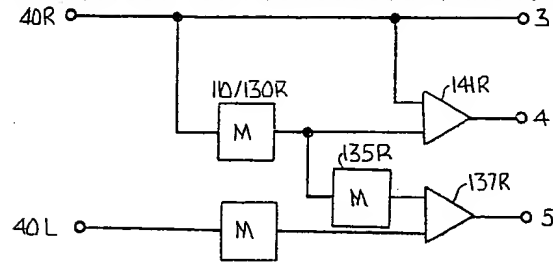
## B. GROUP A - CLAIMS 2 AND 3

### 1. DE FREITAS FIGURE 5 APPLIED TO APPLICANT'S CLAIMS 2 AND 3

The Examiner argues that applicant's claims 2 and 3 are anticipated by DeFreitas, specifically referring to Fig. 5 of the reference. A comparison of DeFreitas' Fig. 5 with the above diagram pictorially representing applicants' claims 2 and 3 shows that this is not correct.

Look at DeFreitas' Fig.5 and consider DeFreitas input 40R. It is used, without modification or variable control, as one of the outputs which we identify as 3 but which is actually the input 1. It is also applied to the mixer 141R directly. It is also modified by a variety of operators identified generally as 110 and another mixer 130R to produce another output which has been identified as 4. Finally, the modified signal is again modified by a filter 135R and is mixed with a modification of another signal 40L to produce another output

signal identified as 5. The net result can be reduced to the following diagram:

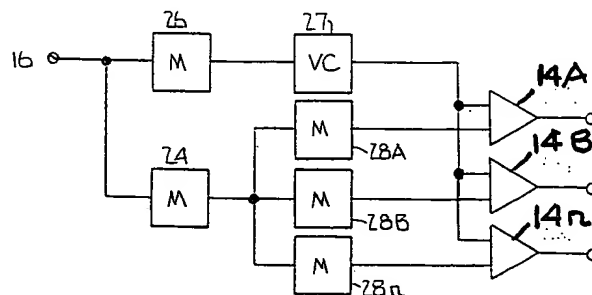


Clearly, signal 3 is not the result of variably controlling or mixing the input signal 40R. Therefore, DeFreitas does not anticipate applicants' claimed invention. Clearly, signal 5 is not the result of mixing the input signal 40R with a modification of the input signal 40R. Moreover, neither input to the mixer 137R is variably controlled. Therefore, DeFreitas does not anticipate applicant's claimed invention. DeFreitas does not operate the same way as applicant's claimed invention and does not produce the same three outputs as applicant's claimed invention.

## 2. BERKOVITZ FIGURES 4, 6 AND 8 APPLIED TO APPLICANT'S CLAIMS 2 and 3

The Examiner argues that applicants' claims 2 and 3 are anticipated by Berkovitz, specifically referring to Figs. 4, 6 and 8 of the reference. A comparison of Berkovitz' Figures 4, 6 and 8 with the above diagram pictorially representing applicants' claims 2 and 3 shows that this is not correct.

In Berkovitz Figure 4, an input 16 is modified by high and low pass filters 26 and 24 and the resulting filtered signals are mixed to produce 3 or more outputs 14A, 14B and 14N as shown below:



The input signal 16 is never applied to any of the mixers 42A, 42B or 42n which provide the output signals. Only modifications of the input signal are mixed. Thus Berkovitz Figure 4 does not anticipate applicants' claimed invention.

Berkovitz Figure 6 is merely a slightly more complex version of Figure 4 and has the same failings as Figure 4 in relation to applicants' claimed invention.

Berkovitz Figure 8 uses multiple input signals 16A and 16B. Output 12A is the result of mixing the input signal 16A with a modification of signal 16A. Output 12B is the result of mixing the input 16B with a modification of signal 16B. Therefore, outputs 12A and 12B are not outputs derived from the same input signal, as taught by applicant. Furthermore, outputs 14A, 14B, 14C and 14D are not derived from either input 16A or 16B but are derived from modifications (filtering) of both 16A and 16B. Berkovitz Figure 8 does not anticipate applicants' claimed invention.

### **3. MORISHIMA FIGURE 2 APPLIED TO APPLICANT'S CLAIM 2**

The Examiner argues that applicants' claims 2 and 3 are anticipated by Morishima, specifically referring to Fig. 3 of the reference. A comparison of Morishima's Fig. 2 with the above diagram pictorially representing applicants' claims 2 and 3 shows that this is not correct.

Looking at Fig. 2 of Morishima, M16 mixes two different input signals 9 and 11, M18 mixes two different input signals 10 and 11, M20 mixes a modification of input signal 10 with an input signal 12 attenuated in response to a signal 13, M22 mixes a modification of input signal 9 with an input signal 12 attenuated in response to a signal 14 and M35 mixes all the input signals 9, 10, 11 and 12 to produce another output. No signal is mixed with a modification of itself to produce an output. No variable control is applied to at least one



of the signals going to each and every mixer. Morishima does not anticipate applicants' claimed invention.

### **C. GROUP B - CLAIMS 4 and 5**

#### **1. DOLBY'S FIGURES 1, 2 AND 8 APPLIED TO APPLICANT'S CLAIMS 4 AND 5**

The Examiner argues that applicants' claims 2 and 3 are anticipated by Dolby, specifically referring to Figs. 1, 2 and 8 of the reference. A comparison of Dolby's Figures 1, 2 and 8 with the above diagram pictorially representing applicants' claims 2 and 3 shows that this is not correct.

In Dolby Figure 1, output signal  $L_{OUT}$  is the result of variably controlling the input signal  $L_{IN}$  in response to a control signal. No mixing of the input signal  $L_{IN}$  occurs. No mixing of a modification of the input signal  $L_{IN}$  occurs.  $R_{OUT}$  is the result of the same operation on  $R_{IN}$ . Therefore,  $L_{OUT}$  and  $R_{OUT}$  do not even involve the same input signals.  $C_{OUT}$  is the result of variably controlling the sum of the outputs  $L_{IN}$  and  $R_{IN}$ . It is not the result of variably controlling an input, also variably controlling a modification of that same input and then mixing the two. Dolby Figure 1 does not anticipate applicants' claimed invention.

Dolby Figure 2 fits the same scenario as Figure 1 and does not anticipate applicants' claimed invention.

Dolby's Figure 8 likewise fits the same scenario. If we consider the + input to amp 22, it is a modification of input signal  $L_{20}$ . The - input is also a modification of input signal  $L_{20}$ . The + input to amp 23 is a modification of input signal  $R_{21}$ . The - input is also a modification of input signal  $R_{21}$ . Thus,  $L_{OUT}$  24 and  $R_{OUT}$  25 are not outputs derived from the same input or from a modification of the same input. Dolby Figure 8 does not

anticipate applicants' claimed invention.

## **2. HILBERT FIGURES 4 AND 5 APPLIED TO APPLICANT'S CLAIMS 4 AND 5**

The Examiner argues that applicants' claims 2 and 3 are anticipated by Hilbert, specifically referring to Figs. 4 and 5 of the reference. A comparison of Hilbert Figs. 4 and 5 with the above diagram pictorially representing applicants' claims 2 and 3 shows that this is not correct.

In Hilbert Figure 4, output 16 is the result of variably controlling input signal 10, output 16d is the result of variably controlling input signal 10, output 16e is the result of variably controlling input signal 10a and output 16a is the result of variably controlling input signal 10a. No output signal is obtained by mixing any signals. No three output signals are the result of variably controlling the input signal, variably controlling a modification of the same input signal or variably controlling both the input signal and a modification thereof. Hilbert Figure 4 does not anticipate applicant's claimed invention.

Hilbert Figure 5 is merely a three channel version of Figure 4. The same scenario applies as described above. Hilbert Figure 5 does not anticipate applicants' claimed invention.

## **D. CONCLUSION**

For anticipation under 35 U.S.C. § 102, the reference must teach every aspect of the claimed invention. None of the references cited teach taking an input (first) signal, modifying the input (first) signal to produce another (second) signal, variably controlling either or both the input (first) signal and the modified input (second) signal and mixing the input (first) signal with the variably controlled modified (second) signal, or the variably controlled (first) input signal with the modified (second) signal, or the variably controlled

input (first) signal with the variably controlled modified (second) signal to produce variably controllable third, fourth and fifth channel output signals. The claims of the present invention are, therefore, clearly patentably distinguished from and not anticipated by any of the references relied upon.

## **IX. APPENDIX OF CLAIMS (37 C.F.R. .192(c)(9))**

The text of the claims involved in the appeal are:

**2.** A method of processing at least one channel input signal comprising the steps of:

receiving the input signal;

modifying the input signal to produce a second signal;

variably controlling one of the input and second signals; and

mixing the variably controlled signal and the not variably controlled signal to produce variably controllable third, fourth and fifth channel output signals.

**3.** A circuit for processing at least one channel input signal comprising:

means for receiving the input signal;

means for modifying said received signal to produce a second signal;

means for variably controlling at least one of said input and second signals; and

means for mixing said variably controlled signal and the not variably controlled signal to produce variably controllable third, fourth and fifth channel output signals.

4. A method of processing at least one channel input signal comprising the steps of:

receiving the input signal;

modifying the input signal to produce a second signal;

variably controlling the input and second signals; and

mixing the variably controlled signals produce variably controllable third, fourth and fifth channel output signals.

5. A circuit for processing at least one channel input signal comprising:

means for receiving the input signal;

means for modifying said received signal to produce a second signal;

means for variably controlling said input and second signals; and

means for mixing said variably controlled signals to produce variably controllable third, fourth and fifth channel output signals.

Respectfully submitted,

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